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UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 977

Contribution from the
Bureau of Markets and Crop Estimates
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Washington, D. C. October 18, 1921

MARKETING HAY AT COUNTRY POINTS.

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Ever since hay has been marketed extensively the hay trade has constantly wrestled with the vexing problem of what to do with low-grade hay—that is, hay that has been improperly prepared or is of a mixture that causes it to be regarded as of a low grade. Such hay is hard to dispose of. Indeed, so serious has this perplexing problem become that at present the only solution has seemed to lie in keeping this kind of hay entirely off the market.

Since this trouble has been in existence for years, it might be supposed the producer had made an effort to correct a practice which is causing him a loss of thousands of dollars annually. That he has not done so is due to two important facts: (1) The producer and the dealers do not as yet agree as to what constitutes quality in hay, and (2) many producers lack vital market information regarding the preparation of hay for terminal and consuming markets.

A recent and comprehensive survey of the important hay markets of the United States has revealed the rather striking fact that a large percentage of our present marketing difficulties originates on the farm, that a thorough knowledge of market requirements on the part of the producer would result in less low-grade hay, and that this would in turn solve in part at least the ever-present problem of what to do with low-grade hay. The purpose of this bulletin is to

give briefly accurate information regarding the preparation and marketing of hay at country points.

EFFECT OF PRESENT METHODS OF PREPARATION.

Quality of hay is at present indicated largely by its color, which is used to gauge the stage of maturity at which it is cut. The hay that grades highest, and consequently brings the most money, is usually that having the best natural green color. Hay dealers can tell from the color whether hay was cut early, medium, or late, and in their opinion the best hay is the early cut hay and the poorest that cut late.

IMPORTANCE OF TIME OF CUTTING.

Early cut timothy means timothy cut just as the plant is coming into full bloom; medium-cut hay is hay cut just after full bloom; and late-cut hay is hay cut entirely after bloom or when the seed is formed or up to the time it is almost matured. The same rules apply to most of the other grass hays and somewhat to many of the legume hays.

The average hay grower, however, in some sections at least, does not agree with the terminal market theory of quality as indicated by color. Many producers prefer medium or late cut hay, especially for horses, because it is easier to cure and is not so "washy" as early cut hay.

Since this difference of opinion will probably exist for some time, it would seem highly advisable for the producer to meet the demands of the trade, in so far as he is able, by cutting hay intended for market at the time demanded by the market and by cutting hay for use on the farm or for the local market at a little later period. By so doing he would get more for his market hay and yet would have the kind wanted for his own use.[1]

There are a number of factors which tend to prevent hay from being cut at the proper time to make the highest quality of market hay. These relate to farm economics, such as the interference of competitive crops, the availability and use of labor, and improved hay-making machinery. Unfavorable weather during hay harvest is responsible for much improperly prepared hay in many parts of the tame-hay section.

Carefully conducted studies of methods of making hay and use of labor and equipment in many important hay-growing sections have shown that the average hay grower does not do the best he can in the matter of saving his hay crop. The Department of Agriculture is prepared to furnish detailed information regarding

[1] Recent investigations in hay standardization show that hay graded low on account of brown leaves only, in some instances, may be hay cut rather early or just as the plant is coming into bloom.

the best methods to use on individual farms in the more important hay-producing sections of the United States. (See list of haymaking bulletins on p. 28.)

IMPROPER CURING.

Present trade rules governing the grading of hay say that the better grades shall be *properly cured* and *sound*. This is another way of saying that only hay having a good or natural green color will bring top prices. The general quality of hay varies because of the influence of such factors as methods used and weather conditions.

Men in the hay trade claim that there has been a change in the methods of making hay in the eastern part of the timothy and clover section. This would seem to be borne out to some extent by the comparatively recent changes in trade rules or grades. A few years ago practically all sets of rules for grading hay contained a grade known as "choice" timothy. When this grade was in effect considerable "choice" timothy was marketed, but the quantity has gradually diminished and this grade has been eliminated by most trade organizations. The claim is made that there is such a small quantity of "choice" timothy that it is no longer necessary to retain this grade.

Country shippers in New York State say that when hay was cured in the cock there was plenty of "choice" hay, but since the side-delivery rake and the hay loader have come into extensive use "choice" hay has gradually disappeared. In fact, some shippers claim that they can detect hay handled with these implements as far as they can see it. In other words, they believe that the new method of curing does not produce so good a quality as the old method of curing in the cock. Complaint has also been made concerning the lowering of the quality of hay in other States where these implements are in general use. The trouble results not from the implements themselves, but from the way in which the side rake and loader are used. When hay was cured in the cock and was not cocked soon enough, it resulted in the same quality as is now obtained when the side rake is not used soon enough. If hay is raked as soon as it is well wilted and considerable curing is done in the windrow, a good quality of hay will result. If, however, the hay is permitted to cure entirely in the swath and the loader follows immediately behind the side rake, the chances are that the hay will have lost so much of its natural green color that it will not grade as "choice." This change has been brought about largely by the shortage in farm labor, and hay growers will have to learn how to use the side rake and loader most efficiently before they can expect to make good marketable hay.

There is a regional difference in the quality of hay brought about almost entirely by weather conditions. In certain parts of the Middle West and West there are sections where good hay is generally

produced because of the almost ideal weather during the haymaking season. Consequently the average quality of the hay is far above that in a section where good haymaking weather is the exception rather than the rule. There are also variations in the general quality of hay within a given locality, caused by methods of curing. It has been found in some instances that one or two counties supply the larger portion of hay for a certain market, while other counties, perhaps nearer to market, are avoided by the city hay dealers. This means that producers in the one section have learned how to cure their hay to suit the demands of their market, while those in the adjoining section have failed so to prepare their hay and consequently there is no demand for it under normal conditions.

RED OR BROWN BLADES.

The most prevalent fault with improperly cured timothy hay is the presence of red or brown blades, sometimes accompanied by brown heads. Such blades are very noticeable, and hay containing such blades in any quantity—say 50 per cent—will not usually bring top market prices.

Red or brown blades are not always accompanied by many brown heads, because such heads usually occur only in late-cut hay, whereas red or brown blades may occur in hay cut in bloom.

It is not known how the actual nutritive value of brown timothy blades compares with that of natural green blades. If this were known it would undoubtedly throw considerable light on the actual value of different grades of market hay and might even effect a change in the demand for certain grades.

UNDERCURED OR HOT HAY.

Hay that reaches the market in the condition usually termed as "hot" is improperly cured. Such hay is usually baled from the swath, windrow, bunch, or cock. Producers are sometimes deceived by the appearance, especially if the leaves are dry, and believe that the hay is ready for baling and for marketing. "Hot" hay is regarded with suspicion by dealers and seldom brings a good price. Frequently "hot" hay sells for a low price, and after it has been "conditioned" by spreading out the bales in a warehouse until it is cool, it is resold at a good profit. But in such cases the producer or shipper sustains the same loss as if the hay could not be conditioned.

The liability of hay to arrive in the market hot is sometimes governed by the distance from market and the time in transit. Hay that probably would not heat when the haul is short and a comparatively short time elapses while in transit, might arrive in the market hot or even spoiled if kept a long time in transit. It will not pay

the average producer or shipper to take any chances on having his hay arrive on the market in a heated condition, since there is no demand for this kind of hay.

STAINED AND BLEACHED HAY.

Stained hay is not wanted in any market. It is regarded as fit only for bedding, for feeders believe that stained hay is neither nourishing nor palatable. Producers do not give much thought to hay that is stained in spots when feeding it on the farm. They know that the animal will eat the good hay and leave the stained parts. The dealer and feeder, not knowing how much stained hay is contained in a bale, either refuse to purchase such hay at all or buy it at a price low enough to make ample allowances for the stained portion. This applies to all kinds of market hay, with the exception of alfalfa. The amount of bleached hay allowed in alfalfa is exceedingly small in the higher grades.

WET AND SNOWY HAY.

Hay wet either by rain or snow causes considerable trouble in markets. Most of the trouble occurs during the winter months, when hay containing snow is baled. During cold weather the hay will remain dry and many producers and shippers either overlook or ignore the snow when they ship the hay. When snowy hay reaches the South or when the weather turns warm the hay becomes wet and sometimes heats and becomes moldy.

In some parts of the South this phenomenon is called a second "heating" or sweating and dealers do not regard such hay as having been properly prepared. A legitimate business can not be built up or maintained if shippers continue to sell such hay as first-class, properly cured hay. The fact that shipper or producer failed to learn that snow was in the hay has led to endless trouble and loss of money.

MUSTY OR MOLDY HAY.

Musty or moldy hay is an indication of improper curing or of spoiling by rain or snow after it has been put into the barn or stack. Such hay is not palatable and is not very salable, because if any bad hay shows on the outside of the bale the feeder has no way of estimating the amount of bad hay there may be inside the bale. Unless hay is abnormally high in price, it is far better to feed moldy or musty hay on the farm rather than try to market it, especially on the terminal markets, where it may have to pass an official inspection.

FAULTY METHODS OF BALING.

In some markets size and weight of bales is an important factor, since there is sometimes a difference of several dollars a ton in the

same grade of hay in small or large bales. In some sections producers could easily find out to what markets their hay is likely to be shipped. Then, whenever it is within their power to do so, they should have their hay properly baled with respect to size and weight of bale.

The reasons for the demand for certain sizes and weights are numerous and are not always based on facts. They will be discussed in a subsequent bulletin dealing with the marketing of hay in terminal markets.[2] In this matter the producer can easily afford to meet the demands of the market. The only exceptions would be when the proper-sized press could not be obtained or when the demand is for such small, light bales that the minimum weight could not be loaded into the ordinary sized box car. About the only way to overcome this exception would be to sell the hay "shipper's track."

If producers and country shippers could have the opportunity of following their hay to its final destination and observing the effect of improper baling, with respect to the number of broken bales and the amount of loose hay that occurs when hay is improperly baled, they would see that the loss caused by improper baling totals thousands of dollars annually.

Broken bales are caused by the improper placing of wires; in some instances, by the use of too few wires.[3] In some of the eastern markets two-wire bales do not bring so high a price as three-wire bales. Dealers say that they are tired of the loss sustained by two-wire bales. The only way they can induce producers to use three wires is by offering less for the two-wire hay than it is really worth as a feed, or by paying a premium for three-wire bales.

"ACCORDION" BALES.

"Accordion" bales are not in demand when properly baled hay is available. An "accordion" bale is one that will open out like an accordion when the wires are taken off and it is pulled from both ends. The charges are matted together and it is very difficult to separate the proper amount for feeding each animal. This kind of bale is caused either by overfeeding the press or by using a type of press that does not separate the charges or turn down the "overlap" at each stroke of the plunger.

Bales having sloping ends and ragged edges or improperly placed wires are classed, by present rules, as improperly baled. The pressing of improperly baled hay can be prevented only by the producer, because baled hay is in that small class of agricultural products which remains as prepared on the farm until consumed.

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[2] Collier, G. A., and McClure, H. B.: Marketing Hay Through Terminal Markets. U. S. Department of Agriculture, Bulletin 979.

[3] See McClure, H. B.: Baling hay. Farmers' Bulletin No. 1049.

"SANDWICHED" HAY.

It is a waste of time, energy, and money to "sandwich" hay, especially if such hay is shipped to a terminal market, because the "sandwiching" is likely to be detected, and the shipper will have to stand a heavy discount. "Sandwiched" hay is hay that contains any stained, bleached, moldy, or rotten hay. The unintentional, careless sandwiching of hay is inexcusable even when the hay is baled by a custom presser, for the producer should be present and see that all unmarketable hay is cut out and thrown to one side. Shipping this kind of hay is often the cause of the shipper's failing to get a "repeat" order from his customer. In some markets dealers keep each other informed concerning shippers who ship such hay or attempt to perpetrate this or other sharp practices.

If hay is in such bad condition that it is not possible or feasible to prevent the baling of all of the bad hay, the best practice for the shipper is to invoice the hay for just what he knows it to be, stating the amount of sandwiching, so the receiver will know that the shipper is not trying to deceive.

It is not always possible for a shipper to load a car uniformly, and in such instances proper invoicing will enable the shipper to dispose of his sandwiched hay to good advantage and avoid entirely disputes and consequent losses.

PLACING THE RESPONSIBILITY FOR BAD BALING PRACTICES.

It is the unanimous opinion of the hay trade, in practically all parts of the country, that something should be done to put a stop to bad baling practices. "Sandwiching" and placing incorrect weights on tags fastened to bales are two practices that should be done away with, because these practices are responsible for a large percentage of disputes between shipper and receiver.

In many instances the shipper or producer-shipper is obliged to rely on the custom baler's weights, since wagon scales are not accessible. Incorrect tag weights are usually the result of carelessness or dishonesty on the part of the presser and producer-shipper.

Many in the hay business are in favor of licensing custom balers and making them responsible for tag weights and the prevention of "sandwiching" or "veneering" hay. In some States, for instance New York State, the department of weights and measures has done excellent work in bettering tag weights. The improvement was brought about by fines imposed on custom pressers. Usually after one fine the presser made sure that his weights were correct. In other States it has not been possible to follow this method to prevent this practice.

PRODUCTION OF UNDESIRABLE MIXTURES.

The production of undesirable mixtures for the market will cause a loss to the producer as long as the market does not want such mixtures. In other words, *certain mixtures are discriminated against regardless of their true nutritive or feeding value.* The producer may know positively that certain mixtures are palatable and contain more total digestible nutrients than the kinds now in greatest demand, yet he is powerless to make feeders realize their value.

The introduction and general use of a new kind or mixture of hay is a very slow, laborious undertaking. It has taken a long time to create a demand on the market for clover, even alsike clover, and it took even longer for alfalfa to find its proper place on the market as a feed for horses.

At present "grassy" hay is discriminated against very severely and is often referred to as "trash," yet the producer, in many instances, prefers this kind of hay to straight timothy. If such hay as redtop, properly cut and cured, and timothy, containing appreciable amounts of fine grasses, properly cut and cured, are generally found to be equal to or better than straight timothy, then the discrimination against them will gradually disappear. But this will take time, and until the true worth of such mixed hays is determined by actual feeding test it is folly for producers to continue to expect to get top prices for this kind of hay.

It is only when hay is very scarce and consequently high in price that certain kinds of "off-grade" hays are profitable to the producer. Good timothy with a mixture of perhaps 30 per cent of fine grasses having a natural green color, better than the timothy itself, has been graded as "sample" hay, which commands a very low price in comparison with that of timothy hay.

An undesirable mixture often causes considerable trouble. This trouble begins when the producer undertakes to dispose of it to the country shipper or to ship it himself. In the first place, to the producer it is first class or No. 1 hay, and in his opinion should command top prices. If he sells it to an experienced shipper, the price received will not be satisfactory to the producer, because he knows that it is perhaps excellent in color and is, to him, the best grade of hay. Under the circumstances he is likely not to believe the shipper when told that such hay is not No. 1, but is "sample" hay under present rules for grading. If the producer becomes suspicious, or is dissatisfied with the price offered by the shipper, and attempts to market it himself, he may think that the receiver is trying to deceive him when he claims that the hay is not of the grade called for in the contract. About the only way to avoid trouble with undesirable

mixtures is for the producer to cease growing such hay and to produce only the kind in demand in the markets to which his hay is usually shipped.

MARKETING HAY AT COUNTRY POINTS.

It is not the purpose of this bulletin to advocate any particular method of marketing hay, such as selling to country shippers, shipping by producer direct to consumers or commission men, or selling through county agents. Present methods of marketing hay at country points as found by a survey covering practically the entire country will be discussed.

FUNCTION OF THE COUNTRY SHIPPER.

A reliable country shipper performs a real, definite service in many hay-growing sections. This is especially true in sections where the farms are comparatively small and hay is produced for the market in comparatively small amounts, from one-half up to 4 or 5 carloads. The country shipper renders a direct service by providing a cash market for the producer's hay. In fact, he does more than this, because he relieves the producer of all responsibility in finding a market for his particular grade of hay and the subsequent trouble that so often arises in the marketing. In other words, the farmer's risk is ended when he delivers his hay to the shipper's warehouse or the car. Then the shipper's risk begins and does not end until he receives his money for the hay, which may be several months or even a year later.

Marketing hay is often a hazardous undertaking, unless a number of conditions are right—a combination that is not likely to continue for any great length of time. In order to market hay successfully the shipper must have (1) sufficient capital to allow plenty of time for settlement; (2) a knowledge not only of the grades used, but how each grade is interpreted on each market or by each receiver not located in a terminal market; (3) a knowledge of the kind and grade of hay in demand in each of the markets to which he desires to ship; (4) a knowledge of the receiver's financial standing; and (5) above all else, knowledge of whether the receiver is honest or resorts to any dishonest practices. In other words, it requires considerable experience and costs money to learn how to make a success as a shipper of hay under present conditions, and it is very doubtful whether it will pay the average producer of a small or medium-sized hay crop to ship his own hay, except in rare cases, such as when he has a definite grasp of all of the five prerequisites. Action based on a thorough knowledge of these factors constitutes a large part of the functions of the country shipper.

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COMPETITION BETWEEN SHIPPERS.

There is sometimes considerable competition between shippers in producing territories. The most common kind is the competition between regular shippers who live in the same territory and who have built up a business and are in it to stay. Their relations are more or less friendly, and such competition acts to stimulate the country market.

SPECULATORS.

Speculators work in divers manners. Lack of space does not permit a full discussion of the workings of speculators. One or two illustrations will serve. "Foreign" speculators are those who think that prices are going to advance considerably in the immediate future. They appear in a producing section and contract for hay at a price which the country shipper can not afford to offer. In many instances no money is paid down to bind the bargain, because the producer is so elated with the high price he believes he will get upon delivery of his hay. If the market does strengthen, the deal goes through; but if the market fails to advance and the price drops, the speculator suddenly leaves the region. Sometimes a few dollars per ton are paid down, and if the speculator has to break his bargain he will sometimes go to the regular country shipper and try to get relief by turning over the business upon receipt of the money paid out. When this is done, the regular shipper has the hard task of trying to convince the producers that the speculator's high price was all wrong in order that he may be able to buy hay at what it is really worth. Such speculators cause a great deal of trouble and dissatisfaction and serve no legitimate aid in the marketing of hay.

LEGITIMATE "OUTSIDE" BUYERS.

"Outside" buyers sometimes come into a territory and work somewhat as do the speculators, in that they pay a higher price than the regular shipper can afford to pay. A case of this kind occurs when the outside buyer has a large order to fill at a very good price and does not have enough hay in his own territory to fill it. He is perfectly justified in advancing prices in the territory in which he works, but it is not often that he buys at such high prices for a very long time. When the "outside" buyer is operating, it naturally hinders the resident shipper's business. One reason why the outside buyer can afford to pay very high prices is that he may be shipping the hay into a territory with which the resident shipper is unfamiliar. There may be a marked difference in the manner of interpreting grades in this market and in the one to which the resident shipper usually ships his hay. These operations work more or less hardship

on the resident buyer, because producers are very loath to believe that the latter can not pay as much as the "outside" buyer.

TRACK BUYERS.

Track buyers who deal in hay operate in much the same manner as track buyers who deal in grain. Some large terminal-market receivers and shippers employ track buyers who travel through the hay-producing sections and purchase hay direct from either country shippers or producers. Occasionally track buyers are not connected with a city firm, but are in the business for themselves alone. In this case the terms of sale should be very carefully made in order that there will be a clear understanding as to the manner and time of payment.[4]

GENERAL PRACTICES.

How best to market hay is a problem that needs to be given more careful consideration by many hay producers. Those who do not have sufficient help to harvest their hay or do not own baling presses should become familiar with the merits of different methods of marketing their crop.

MARKETING STANDING OR UNCUT HAY.

The sale of standing or uncut hay is not common in the timothy and clover sections. Sometimes when the producer is so rushed with other crops that he is obliged to neglect hay until too late to secure good quality, he will endeavor to sell his crop as it stands. The three main difficulties in this method of marketing are (1) to find a buyer, (2) to agree on the yield, and (3) to reach an amicable agreement regarding the price of uncut hay in comparison with that of properly cured hay ready for the market.

If the buyer is a farmer, it frequently is somewhat easier to agree on the yield than if the buyer is a shipper or someone who is not familiar with the producing power of the farm or hayfield. To calculate the percentage of dry or marketable hay from the yield of standing hay it will be necessary to know roughly the average shrinkage of hay in curing.[5] The amount of water in unwilted timothy is about as follows: Minimum 47 per cent; maximum 78.7 per cent; average 61.6 per cent. The average amount of water in well-cured barn or stack hay, ready for baling, is 12.8 per cent. The average amount of water in red clover when uncut is about 70 per cent, and when ready for baling about 10 per cent. Alfalfa when uncut contains a little more water than clover and when ready for baling contains a little less.

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[4] A full discussion of how track buyers operate is given in U. S. Department of Agriculture Bulletin 979, Marketing Hay Through Terminal Markets. 1921.

[5] See McClure, H. B.: The Shrinkage of Market Hay. U. S. Dept. of Agriculture Bulletin No. 873, 1920.

A knowledge of the labor requirements in haymaking will be necessary in arriving at the market value of uncut hay, as it will enable both seller and buyer to calculate how much should be deducted from the market price for this labor.

MARKETING WINDROW OR COCK HAY.

Selling hay in the windrow or in the cock is seldom practiced in the tame-hay sections. Of the two methods, selling cocked hay occurs oftener than selling in the windrow. There is little time to find a buyer when selling windrow hay; and if this method is to be followed, the producer should make the sale before the hay is cut. Hay in the cock may safely remain in the field longer than that in the windrow, but hay in the cock seldom has a good color if left for more than a week. The logical market for hay sold in the windrow and cock is the local market. Feeders of loose hay often purchase enough during haymaking time to last for several months, and it is this class of feeders who furnish a market for the comparatively small percentage of the hay crop sold in the windrow or cock. In arriving at the actual market value of windrow or cock hay it will be necessary to estimate how much to allow for the extra water contained in the hay.

The average of all available analyses shows that the maximum water content of timothy hay ready to be put into the barn or stack, which has been cut early to full bloom, is about 29 per cent, and for that cut late bloom to early seed about 22 per cent. Under average conditions timothy probably does not contain more than about 20 per cent of water when put into the stack or barn. The average water content of alfalfa and clover is a trifle higher than of timothy when ready to be put into the stack or barn.

MARKETING BARN AND STACK HAY.

The general practice in the timothy and clover section is to sell hay loose in the barn or stack. That is, the terms regarding price per ton are made before the hay is baled. This practice results in a very material loss to thousands of producers every year, and causes country shippers to lose money in many instances. Sometimes the producer alone loses, sometimes the shipper alone loses by this rather crude method of marketing.

The trouble with this method is that the shipper can not tell what kind of hay he is buying by merely looking at the hay in the top of a mow or on the outside of a stack. The producer ordinarily has a knowledge of the percentage of the different grasses, clovers, weeds, stubble, trash, etc., in his hay, but he is not likely to say much about this knowledge when trying to sell his hay.

The average producer does not know the grades as applied in the city markets, and he almost invariably claims to have a much higher grade than the hay would grade on the city market. Under such circumstances the country shipper, in buying unbaled hay, must often set a price low enough to cover inferior hay in the middle of the mow or stack. This necessary practice, on the part of the shipper, often causes an appreciable loss to the producer whose barn or stack of hay runs true to the grade of hay that can be seen when the sale is made. On the other hand, the shipper sometimes takes the producer's word regarding hay and finds out later, when the hay is being delivered, that the quality has been misrepresented, and as a result suffers a heavy loss.

It is the consensus of opinion among country shippers that the average hay grower does not know the grades of hay, and also that the buying of hay on such producer's word only is a hazardous method.

The shippers themselves are responsible in many instances for the lack of knowledge regarding grades on the part of the producer. In purchasing hay from producers the shipper rarely disputes the grower, who says that his hay is "choice" or No. 1, but simply pays what the hay seems to be worth. It is often for this reason that producers have come to have incorrect ideas as to the grade of their hay.

MARKETING HAY IN THE BALE BY THE PRODUCER.

The only solution of present difficulties encountered when hay is sold in the barn or stack is to sell it after it has been baled. If this were done, the shipper would have an opportunity to see just what he is buying and could determine the actual amount of the different grades present and would be able not only to protect himself, but to pay the producer the proper market price for all of the hay offered for sale. As it stands to-day, when the shipper loses on a bad lot of hay from one producer he is obliged to try to make up the loss on the good hay purchased from other producers. In general, shippers who buy small lots of hay, say from one-half up to 2 or 3 carloads, from a single producer would welcome the idea of buying hay by grade from the producer.

In some sections selling hay in the bale is practiced rather extensively. In the "Black Belt" of the South alfalfa and Johnson grass hay is baled before it is sold. Considerable prairie hay is sold in the same manner. This method of preparation before selling was brought about because baling from the windrow or cock requires less labor than any other method.

When hay is hauled to the shipping point as soon as it is baled, the shipper can inspect it as it comes in; and if there is any varia-

tion in grade, the question can easily be settled on the spot to the satisfaction of both parties to the transaction. In the "Black Belt" those who do not sell as soon as the hay is baled put their hay in warehouses, where it will be protected from the weather until it is sold. It is easier to judge the general quality of baled hay in a warehouse than of loose hay in the barn where only the hay on top can be seen.

TERMS OF SALE BETWEEN PRODUCER AND SHIPPER.

Terms regarding location.—When a producer offers his hay for sale, the first thing the shipper wants to know is where the hay is located with reference to the shipping point. Shippers who ship from several points are not always able to have a representative present when the hay is loaded into the car by the producer. When a car is loaded at a distant siding or town, it is rather expensive to the shipper to send one of his men to that point at the time the hay is to be delivered, because sometimes the man will spend half a day only to find that the producer has decided not to bring the hay on that day. Then, too, sometimes it comes in so slowly that the whole day is spent in loading a 10-ton car.

The next thing the shipper wants to know is how the hay is stored, whether in the barn or stack. Hay often remains unbaled for several months after the sale has been made, and if it is stack hay it may deteriorate considerably in a comparatively short time, especially if the stack is small or not well built or both. Shippers who do not have a hay warehouse at each shipping point must necessarily take many chances when buying hay to be delivered direct to the car. It also frequently happens that the hay the shipper bought for No. 1 will run very uneven in quality, and if he does not have a warehouse in which to put the off-grade hay, he is obliged to place several grades in a car. If the hay purchased is located so that it can be delivered to a shipping-point warehouse, the shipper has a chance to keep out the poor hay and load cars as desired.

Terms regarding quality.—One of the greatest sources of trouble and dispute between producer and shipper is for the shipper to take the producer's word regarding the quality or grade of hay offered for sale. Though it is true that some producers know the grades of hay in a general way, it is the opinion among shippers that the majority of producers either do not know the market grades of hay or they make deliberate misstatements when describing the quality of their hay.

It is equally true that many shippers drive hard bargains when they buy hay from the producer. In other words, the producer thinks it is to his interest to make it appear that his hay is better than it really is, and the shipper thinks that he gains by discrediting the

quality of the hay. Investigations conducted by the Bureau of Markets have shown that the majority of country shippers find it to be good business to pay exactly what any particular grade of hay is worth. Consequently, they desire to deal only with producers who are honest. In order to make a deal, however, it is necessary for shipper and producer to come to an agreement as to the price of the hay in question. If the interested parties attempt to agree on the real quality or grade the chances are that they will fail to reach a satisfactory agreement. Few shippers now attempt to buy hay by grade. If they do, they appear to accept the producer's ideas, but they do not pay him what that grade is worth if the hay in question is not really of the grade the producer thinks it is.

The more common method is for the shipper to learn all he can about the mixture and quality by talking with the producer and inspecting the hay in the barn or at the stack and then make an offer on the ton basis. By this method there is no chance for argument regarding quality, and the producer can either accept or reject the price offered. As the matter stands at present the true grade of hay and the market price are determined almost solely by the shipper, and it must be admitted that this practice does not work toward bettering the marketing of hay at country points.

Terms regarding baling.—The percentage of hay growers who own baling presses is very small in the timothy and clover growing sections, where the bulk of the market hay is produced. Consequently, when hay is to be marketed, either the producer or the shipper must have the hay baled. In some sections the shipper pays for the baling, and this may lead to trouble for one or both parties as well as the custom baler, depending upon the manner of paying.

One rather general method is for the shipper to pay the producer, who in turn pays the money over to the man doing the baling. By this method the presser is really working for the producer even though it is the shipper's money that pays for the baling. The producer is supposed to oversee the work in a general way and is responsible for the baling of the hay in the proper manner. If the producer merely tells the operator of the press to throw out the worst of it but to bale all hay that is not too bad, it frequently happens that too much of the bad hay is baled with the good. This causes the shipper an endless amount of trouble, especially if he has relied upon the producer to have it properly baled and is not present when the hay is loaded into the car. It has been found that many disputes between shipper and receiver are due to the fact that the shipper did not see the hay put into the car, but trusted the producer to see that the hay was baled properly.

Another common method is for the shipper to do the baling. In such cases the press operator is working directly for the shipper.

who should keep closely in touch with the pressing. Terms of sale by which the shipper does the baling should be very specific concerning the baling of hay in any way off-grade, so that the producer will not make trouble regarding the rejection by the presser of any hay that would cause the consignment to be graded down when it arrives in a terminal market.

Terms regarding payment.—Terms regarding method of payment for hay should be clearly understood when the transaction is made. Considerable hay is sold by verbal agreement, and if all of the terms are not made clear, trouble may arise later, especially if there is a change in the market. If the price goes up very much some producers will try to break the agreement. The same holds true with some shippers when the market declines.

In some instances it is good business for the shipper to make a small initial payment and take a receipt, so that he will have something to show in case trouble arises. It is not customary to pay in full for hay before it is delivered unless it is measured in the barn or stack at the time the sale is made. Speculators are often able to contract for the delivery of considerable hay without paying out any money, but a payment of a dollar per ton should be just as binding as if three-fourths of the agreed price were paid when the sale is made. It is fair to both parties if the balance is not paid until the hay is delivered.

Terms regarding time of delivery.—Terms regarding time of delivery are usually very important. A sale wherein the producer agrees to deliver the hay whenever notified is likely to be unsatisfactory to both parties. It may be rightly assumed that the shipper will ask for delivery of hay when he can sell it advantageously unless he has plenty of storage space, in which case the producer would be allowed to deliver the hay as soon as he pleased. If the price of hay drops soon after the producer sells, it may be several months before he will be asked to deliver it. Shippers sometimes want hay delivered on very short notice. This may happen at a time when the roads are almost or entirely impassable or when there is a rush of farm work that must be done by the farmer. Again, the shipper may delay the delivery until the new crop is ready to cut and the farmer needs his barn room for storing the new crop. Other instances could be cited to show the necessity for a clear understanding regarding the importance to both parties as to the time of delivery.

Terms regarding place of delivery.—Terms regarding place of delivery are sometimes important. Farmers naturally do not wish to haul any farther than necessary, although instances can be cited where it might be to the shipper's advantage to insist on the longer haul, as to a siding where wagon scales are accessible. If the hay

carries tag weights, the producer will naturally insist that the hay be delivered to the siding and that the shipper accept the tag weights. If the shipper has reason to believe that the tag weights are incorrect, either because they were incorrectly marked when the hay was baled or because there has been shrinkage since the hay was baled, he will want the hay delivered where it can be weighed on wagon scales. It often works out when the producer, whose tag weights are suspected of being incorrect, insists on delivering to a point where wagon scales are not accessible that the shipper will make a rough estimate of the amount the tag weights are off and lower his price per ton accordingly.

Responsibility for damage before hay is delivered.—The problem of ownership of hay that is damaged by water or destroyed by fire after hay has been sold but is still on the producer's premises is a vexing one. It is more than this, for it almost invariably causes bitter controversies and often lawsuits before the matter is finally settled. In some States at least the law bearing on the point in question is not clear, as is evidenced by the frequency of suits, especially when hay is damaged by fire.

Verbal contracts do not amount to much when water or fire damages hay after the sale has been made. A written contract is the only kind that should be regarded as binding when hay becomes damaged.

CONTRACTS.

It is good business practice to use a written contract, especially if it is fair to both parties. There are many types of contracts drawn up by shippers that vary only in minor points. The following contract, used by a large shipper in New York State, will serve to show the general trend of shippers' contracts.

ORIGINAL TO BE BILLED TO JOHN SMITH.

————, N. Y. ————, 19—.

Mr. ————, P. O. address ————, sells and John Smith, of ————, N. Y., buys the commodity ————, described as follows ————.

CUSTOMARY CONDITIONS COVERING THIS CONTRACT.

Delivered to the buyer's warehouse or into cars at ————, N. Y.

Seller agrees all hay to be of the same quality throughout, as shown on outside of mows. It is mutually understood and agreed upon that if moldy, stained, or off-colored hay or hay of inferior quality to that shown on the outside is found in the mows, balers may stop pressing or bale the same for the seller. When hay is not delivered from press to the cars or buyer's warehouse, it is to be stored by the seller in such a manner that it can not become damaged, and is to be delivered on board the cars or at the buyer's warehouse at the direction of the buyer.

It is mutually agreed upon and understood that delivery is to be made and title pass when hay is placed on board the cars or in the buyer's warehouse, and in case of damage by fire or water prior to that time, it shall be the loss of the seller. Seller agrees to deliver the hay into the car or buyer's warehouse entirely dry and in good condition. It is understood and agreed between ————, seller, and John Smith, the buyer, that this crop of ———— is insured for the full value, or will be insured by the seller in event any money is advanced on crop, so that John Smith will not be held in any way responsible in case of loss or damage by fire, water, or other damage before delivery at car or warehouse.

Seller ————————————
Buyer ————————————
Per ————————————

Subject to delay in delivery on account of embargoes, car shortage, strikes, or other causes beyond the seller's control.

Producers do not like contracts.—It is a rather difficult undertaking to induce the average farmer, in some sections at least, to sign a contract. The longer the contract is, the less likely he is to put his name to it, because he does not like to sign one that is full of conditions. According to the contract here shown, the hay must be of the grade showing on the top of the mow. It has already been explained that there may be a considerable variation in the mow or stack run of hay. If the producer knows that there is inferior hay in the mow, out of sight of the buyer at the time the sale is made, he may refuse to sign the contract or he may sign it and afterwards claim that the hay all runs even.

Some shippers claim that when one has the opportunity of buying a farmer's crop it is necessary to make one price and take all of the hay, no matter how poorly it turns out. After the contract is signed and inferior hay begins to show up the buyer has a very difficult task to convince some producers at least that there is a decided variation in quality.

Farmers break contracts.—Buyers sometimes expect that farmers will break their contracts. Once in a while, a farmer who has signed a contract gets a better offer from another shipper, and refuses to bring in the hay to the man with whom he signed the contract. Sometimes the better price is only a small advance of 25 cents per ton. The farmer knows that he is tied up by legal contract that would be binding if taken into court, but the shipper very seldom if ever takes the matter into the courts. The only thing the shipper would gain would be to teach producers of hay a costly lesson, for the lawyer's fees would probably amount to more than the shipper's profit on the hay.

Buyers also frequently fail to fulfill verbal contracts, and sometimes when the market has declined they either refuse to take the hay or delay moving it until the producer must sell it to someone else to get it out of the way for a new crop.

Real value of a contract.—Notwithstanding all that has been said against contracts, there is real value in the contract method of marketing. A contract settles definitely the matter of the ownership of the hay as long as it is on the producer's premises. Therefore it is a valuable instrument, because it protects the shipper against loss or damage by water or fire until it is actually in his possession, and it actuates the producer to take good care of his crop until it is delivered.

BUYING AND SELLING HAY BY GRADE ON THE FARM.

Hay is not generally sold by grade on the farm, and until producers are educated to see the benefit of this practice it will not come into general use. Real selling of hay by grade on the farm takes place when the shipper makes the producer an offer for each grade that is likely to be found in the stack or barn when the hay is baled. As the hay comes from the press it should be sorted into grades before storing, so that when it is delivered a wagonload will be of one grade only. As each load is delivered a tally is kept of the number and weight of bales of each grade and payment is made accordingly.

The reasons why this method of marketing is not in more general use to-day are: (1) It is a new method of doing business, and (2) many producers believe that the shipper always wants to get ahead of the producer by grading down the good hay. This theory is in general incorrect, because many shippers wish to make only a fair profit and are very anxious to use this method, as it does away with a great deal of loss caused by the old "guess" or "sight unseen" method.

Instances have been noted where shippers buy the majority of their hay by grade on a written contract. To sell hay by grade on the farm it is necessary for the producer to have implicit confidence in the honesty of the shipper. It is also necessary that the shipper never abuse this confidence by grading the producer's hay carelessly.

FACTORS WHICH PREVENT BUYING AND SELLING BY GRADE ON THE FARM.

The one great outstanding factor that prevents the general adoption of the method of selling hay by grade on the farm is the lack of uniform grades. This lack affects both producer and shipper. The producer has no way at present of learning the true grades of hay. For instance, if a farmer grows timothy containing one-third of fine tame grasses and cuts and cures it properly, it may have a better color than good "standard" timothy, yet it will not bring as good a price as No. 2 timothy with a poorer color.

The shipper at present grades his hay according to the way his receiver grades hay. That is, to one customer he is obliged to ship

real No. 1 hay, while to some other customer he can ship a poor No. 2 and it will be received as a No. 1 hay. If the shipper varies in grading hay as it is being received from the producer, he will not be able to continue the use of this method very long in any community.

If uniform grades and an effective, unbiased inspection service were to be adopted in terminal markets it is believed that most shippers would feel entirely satisfied to have the hay graded by an official inspector and settle with the producer on the basis of such inspection. By this method the producer could easily learn the grades of hay and in a short time would actually be able to sell his hay by grades on the farm after it was baled, sorted, and piled for inspection by the shipper.

COST OF MARKETING HAY BY THE PRODUCER.

COST OF BALING.

The largest single item of cost in preparing hay for the market is that of baling. Only the large hay growers own baling presses. The most of the baling of market hay, in the timothy and clover section, is done by custom pressers. These men usually start up their presses after the hay has gone through the "sweat" in the stack or barn, in September, and bale more or less continuously until the next crop is ready to be harvested.

The present price for baling is much higher than just before the war, ranging from $2.50 to about $4 per ton. In many instances the producer furnishes the wire and the labor required to get the hay from the stack or barn to the press feeder. In addition it is sometimes necessary for the producer to board the regular press crew, consisting of three or four men. Considering that a two-horse press will turn out about 10 tons per day, and a power press from 12 to a little over 20 tons per day, it will be noted that baling is a rather costly item if the crew's board is added to the other costs.

Under present conditions it is probable that many producers could well afford to own presses for baling their hay. If desired, considerable pressing could be done for others near by, and thus the cost of repairs, interest on the investment, and replacement charges per ton would be at the minimum for the producer's hay.[6]

COST OF DELIVERING.

The producer usually agrees to deliver his hay at a point designated by the shipper at the time the sale is made. Shippers do not as a rule have means of bringing in hay from the country, as it would hardly pay them to maintain horses or trucks just for hauling hay. The

[6] A full discussion of crew arrangement and cost of baling hay is given in Farmers' Bulletin No. 1049, "Baling Hay."

average producer does not object to delivering hay if the time of delivery does not come when there is other pressing farm work or when the roads are in bad condition.

Most of the hay in many sections is hauled during the fall, winter, and early spring, when producers are not exceptionally busy with their field crops. Since hay is delivered without outlay for the hiring of extra help, either men or teams, producers do not count the cost of delivering hay, as they would if the actual cost of marketing were being ascertained. There is very little accurate data on the cost of hauling and putting hay into the car or warehouse.

The data in Table 1, obtained in making an economic study of the cost of hay production in northeastern Oklahoma in the winter of 1917, will serve to show the comparative cost per ton of hauling hay from 1 up to 10 miles.

TABLE 1.—*Prices paid for hauling baled hay to market.*

Distance.	Usual rate per ton.	Distance.	Usual rate per ton.
Miles.		*Miles.*	
1	$0.25 to $0.35	6	$1.25 to $1.35
2	.50 to .60	7	1.35 to 1.50
3	.75 to .80	8	1.50 to 1.75
4	.90 to 1.00	9	1.75 to 2.00
5	1.10 to 1.25	10	1.75 to 2.00

METHODS OF HANDLING HAY AT SHIPPING POINT.

INSPECTION AND WEIGHING OF HAY.

The inspection of hay at the shipping point as it is delivered from the farm is rarely ever a really thorough inspection. The time to teach producers market grades is when the hay is brought to the shipper's scales or warehouse or the car. It too frequently happens that the shipper will inspect a wagonload of hay casually as it arrives and notice that it contains two or three grades, yet will say nothing about grades to the grower. If the grower has described the hay, as, for instance, good No. 1 timothy, he is likely to go away with the idea that he has just delivered some very good hay, while, as a matter of fact, the best of it may not be better than a good No. 2 hay. Shippers usually only object to hay that is so obviously off grade that it will not pay to try to ship it, as they know it will be graded as "no grade." Many shippers insist that such hay be taken back by the grower.[7]

LOADING DIRECTLY INTO CARS.

The most common method of handling hay as it comes in from the country is to load it immediately into cars and ship it to market.

[7] See Collier, G. A., and McClure, H. B.: The Weighing of Market Hay. U. S. Department of Agriculture, Bulletin 978.

Under certain conditions this is satisfactory, while under others it is anything but satisfactory. The success of this method of handling hay depends upon several factors: (1) Kind or grade of hay handled: (2) amount to be handled in a given length of time: (3) ability of the shipper to get the required number of cars when they are needed. If only one car is to be loaded, it will be necessary for the shipper to see that the amount needed to fill the car is fairly uniform in quality. If he has purchased a carload from a single producer whose entire lot varies in quality, it will be necessary to have some other producer bring in sufficient hay of the desired grade to make up a carload.

It is such a difficult matter to get two producers or more to bring in practically the same grade of hay that many shippers let the small producer who has a single carload of hay bring it all in and load it into the car. Right here is one of the greatest faults found to-day with the hay business, namely, loading cars unevenly. Such cars cause trouble all along the line.

Formerly shippers did not experience much difficulty in procuring cars as ordered. With sufficient cars and plenty of hay coming in, it is a comparatively easy matter to inspect hay by the wagonload method and direct the driver to place his load in a certain car. By this method the shipper might in one day load several cars of the better grades and be able to put all the lower grade hay into a single car. Thus the shipper could make an honest invoice on each car and avoid trouble, which he could not do if he had to work 2 or 3 tons of off-hay into the corners of the car, where it could not be detected until the car was unloaded.

In recent years shippers have experienced great difficulty in procuring cars when needed. The only solution of the trouble caused by inability to get several cars at once, so that hay may be graded as it is loaded, is for shippers to provide warehouses for the sorting and storing of hay where it may be kept until they can procure cars.

USE AND VALUE OF WAREHOUSES.

Shippers are divided in their opinions as to the use and value of warehouses at country shipping points. Some have been very successful in warehousing hay, while others think that warehouses are merely a needless expense. It all depends upon the conditions under which the shipper operates.

The value of a warehouse depends upon: (1) Volume of business; (2) number of shipping points: (3) location of the warehouse (shipping point) with reference to the direction of shipment: (4) obtaining of billing in transit privileges.

If a shipper does all or the larger percentage of his business at one shipping point, there is little question about the success of warehous-

ing hay. If, however, he has a number of shipping points, then it becomes a question whether it would pay to build warehouses at these various points or to try to run all of the hay through the home warehouse or to do without warehouses.

The location of the warehouse with reference to the other shipping points and the direction of shipment to the terminal markets has an important bearing upon the value of a sorting warehouse. A sorting warehouse is one used to sort or separate hay shipped from storage warehouses or brought in from surrounding territory. If the hay purchased at the various shipping points necessitates a "back haul" it will seldom pay to run the hay through a warehouse. If hay purchased at various shipping points can be routed so as to pass through the home shipping point en route to market, a sorting warehouse can be used quite advantageously, provided the shipper has been able to secure billing in transit privileges.

If hay can be billed so that it may be put through a warehouse in transit it will give the shipper an opportunity to load cars uniformly. Many shippers think that if every shipper could run his hay through a warehouse it would result in doing away with all the trouble caused at present on account of "plugged" cars and uneven loading. Some shippers are not in favor of warehousing hay. They claim that a shipper's competitor who loads in the ordinary manner often gets the same price as does the shipper whose hay has been put through the warehouse at an added expense. Such hay does not necessarily bring any more money per ton. This is particularly the case during times of advancing markets.

In general, but little is gained in using a warehouse unless the hay is sorted and graded as it comes in, because filling the warehouse in a haphazard manner makes it practically impossible to load uniform cars when the time comes to place the hay in the cars.

Some interesting information regarding the value of warehouses has been obtained in Aroostook County, Me. The shippers in this county do not have any trouble about uniform loading. Practically all the hay grown for the market in this county is put into barns, where it is safe from weather injury. As soon as it is baled it is hauled to the shippers' warehouses and is sorted and graded as it goes in. When the shipper desires to load a car of any grade of hay no difficulty is experienced in loading the car uniformly. Many shippers who do not sort hay as it comes in say that they can not load cars uniformly because they have to trust ignorant laborers who do not know the grades of hay. In the Aroostook County warehouses inexperienced men can be used as efficiently as experienced warehousemen, because it is necessary only to tell them where to get the hay for each car, as the hay has been previously graded.

COST OF WAREHOUSING HAY.

Data are lacking on the actual cost of warehousing hay under different conditions. A statement of the usual cost will enable shippers to form some definite idea of the general cost of warehousing. When hay is put through a warehouse in transit, the stop-over privilege costs about $3.50 per car. Unloading into the warehouse costs about 35 cents per ton additional. The total cost of unloading, putting the hay through the warehouse, and back again into the car costs about $1. This charge is the cost of labor only and does not include overhead charges, such as repairs, interest on investment, insurance, and depreciation on the warehouse.

A WELL-EQUIPPED WAREHOUSE.

The following description of a well-equipped warehouse is given for the benefit of those who are considering the building of warehouses in which to sort and grade hay. The warehouse herein described is located in northeastern Michigan, has been in operation for several years, and is considered to meet all of the requirements of a country warehouse.

It is equipped with motor-driven machinery so arranged that with the help of about six men, it can unload, grade and store a car of hay in about 30 minutes. A car can also be reloaded in about the same time. As the hay is unloaded from the cars it is placed upon a chain elevator and conveyor, which takes it to a grading platform on the fourth floor of the warehouse. At this platform a man grades each bale as it arrives and places it in one of the three chutes which lead from the platform to the different locations on the three lower floors of the warehouse. By operating levers which control gates in these chutes, hay can be placed in nine different locations in the warehouse.

The grading platform and the conveyor which brings the hay to the grader are shown in figure 1. This figure also shows the opening to one of the chutes and the levers which control the gates or switches. Another conveyor on the lower floor carries the hay from the warehouse to the car and is so arranged that the hay from the second and third floors can be placed in the chutes and be delivered to the reloading conveyor. The estimated cost of handling hay through this warehouse is $1.50 per ton.

DISADVANTAGES OF WAREHOUSING.

Aside from the added cost of handling, some shippers claim that warehouses are a disadvantage to them for the reason that when the farmers know that the shipper has storage space for their hay they will insist on bringing it in at times most convenient to them, so that

the shipper is forced to store the hay and often must sell it at a loss because of a decline in the market before he can make a sale or obtain cars for reshipment. In other words, under certain conditions he is forced to become a speculator in hay and generally he will pay a price which will protect him against all possible risks.

METHODS OF LOADING CARS.

Many cars are improperly loaded, the bales not being so placed as to utilize all of the space. A visit to any terminal market that receives hay loaded by producers will reveal a surprisingly large number of cars improperly loaded.

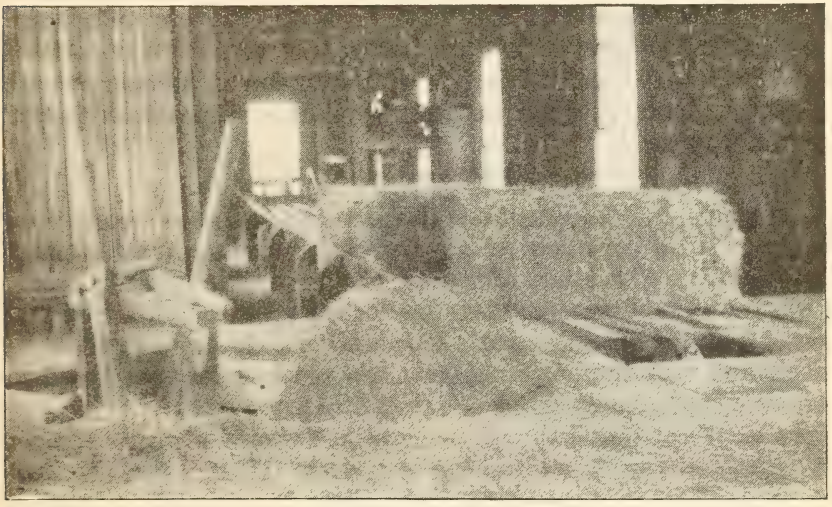

FIG. 1.—Grading platform and conveyor.

When loading bales 14 by 18, 16 by 18, or 17 by 22 inches the hay should be loaded in tiers across the end of the car. Either four or five tiers can be loaded in each end of the car, depending upon its length. Usually four tiers are loaded into each end of a 34 or 36 foot car. Five tiers can be loaded into each end of a 40-foot car. Bales should be loaded flat, i. e., with the wires down, or on edge, or part flat and part on edge in the tiers. They are placed flat or on edge as is necessary just to fill the space. Usually five or six bales can be placed in each row of the tier. In an ordinary 36-foot box car, which is about 8 feet high and 8 feet wide, 36 of the 14 by 16 bales can be loaded or about 30 of the 16 by 18, or 25 of the 17 by 22 bales. The doorway of the car will hold about as many bales as the two tiers, usually 6 to 10 bales more. The average 36-foot car will therefore hold from about 250 of the larger bales to 350 of the smaller bales.

The large five-wire bales should be loaded differently from the sizes just mentioned. Usually two of the large bales laid end to end

will reach across the car from one side to the other and four of the bales one on top of the other, flat sides together, will reach to the top of the car. One tier of the large bales will, therefore, generally contain about eight bales. It is sometimes possible to place one row of bales on end and thus get an extra bale into the tier. From 10 to 14 tiers can be loaded into the car, depending upon the length of the car, so that a carload of five-wire bales will contain from 90 to 125 bales.

Except when shipping new hay loaded very loosely, there should not be much difficulty in loading cars up to the minimum weight required. In sections where hay is baled with power presses, very little trouble is experienced in loading a car to its minimum weight. In the prairie-hay section hay baled from the windrow with horse presses, for shipment to the South, often does not weigh more than 70 pounds to the bale. This type of bale makes it difficult to load cars to the minimum weight, especially in some of the smaller, older types of equipment.

LOADING NEW HAY.

In shipping new hay the bales should be loaded more loosely than old hay. When new hay is crowded close together (in the bale) it prevents the circulation of the air and heating is likely to occur. It has been found that if bales are loaded on end and allowed to remain a slight distance apart, they will tend to dry out while in transit and will therefore not heat too much, unless the hay has been very inadequately cured.

The length of time hay will be in transit should always be taken into consideration when loading new hay. If the haul is comparatively short it is not necessary to allow for circulation between the bales. Hay that will probably be in transit more than a few days should be loaded so as to prevent heating as much as possible. It often happens that hay baled from the windrow, swath, or cock, is apparently cool when loaded, but arrives "hot" in the market. In some such instances shippers question the statement of the receiver when he reports that the hay has arrived "hot." It is much better to hold newly baled hay in storage for a few weeks so that it will cure thoroughly than to run the risk of its heating and spoiling in transit.

LOADING CARS UNIFORMLY.

The uneven loading of cars is a practice that is constantly causing a great deal of trouble in the hay industry in many parts of the country. The trouble is caused by the fact that shippers fail to invoice cars properly when they are not loaded uniformly. This omission has at least two causes: (1) The shipper is not aware of

the fact that there is a variation in the hay or (2) low grade hay is deliberately put in with the better hay in order to make a little more money out of the deal.

The hay standardization office of the United States Department of Agriculture has some very striking evidence of intentional "plugging" of cars. In one instance 25 bales of "Sample" timothy were put into a car containing 241 bales of No. 1 timothy. A separation analysis of one of the bales of off-grade hay showed it to contain 55.30 per cent of timothy, 39.50 per cent of volunteer wheat hay, and 4.50 per cent of weeds.

When cars are intentionally loaded unevenly an attempt is always made to put the poor, low-priced hay in the corners or under the good hay so that it can not be detected by a car-door inspection. Indeed, some shippers often succeed temporarily in this crooked practice when hay is given a "plug" inspection.

The old practice of invoicing all of a carload of hay as of the grade of the best hay is no longer considered an honest practice. In some of the markets receivers have begun to take steps that will tend to discourage the practice of loading cars unevenly, and inspectors are placing the lower grade on shipments which contain more than a reasonable percentage of such lower grade hay.

The hay-marketing survey, previously referred to, has shown that two grades or more of hay may be loaded into a car and no trouble will result if the shipper invoices the hay for just what it is and not as all being of the best grade.

PUBLICATIONS OF THE U. S. DEPARTMENT OF AGRICULTURE RELATING TO HAY.

Baling Hay, Farmers' Bulletin No. 1049.
Hay Stackers, Farmers' Bulletin No. 1009.
Hay Caps, Farmers' Bulletin No. 977.
Labor-Saving Practices in Haymaking, Farmers' Bulletin No. 987.
Curing Hay on Trucks, Farmers' Bulletin No. 956.
Haymaking, Farmers' Bulletin No. 943.
A Study of Haymaking Crews and Labor Costs, U. S. Department of Agriculture Bulletin 578.
Harvesting Hay with the Sweep Rake, Farmers' Bulletin 638.
The Shrinkage of Market Hay, U. S. Department of Agriculture Bulletin 873.

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WASHINGTON : GOVERNMENT PRINTING OFFICE : 1921